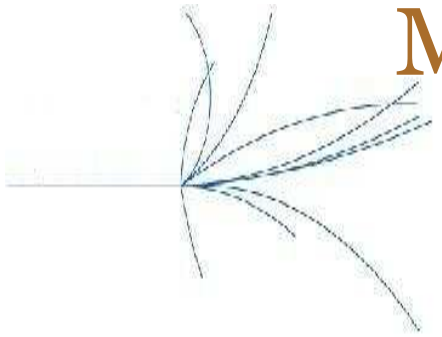


MIPP Software Meeting 03/21/2008

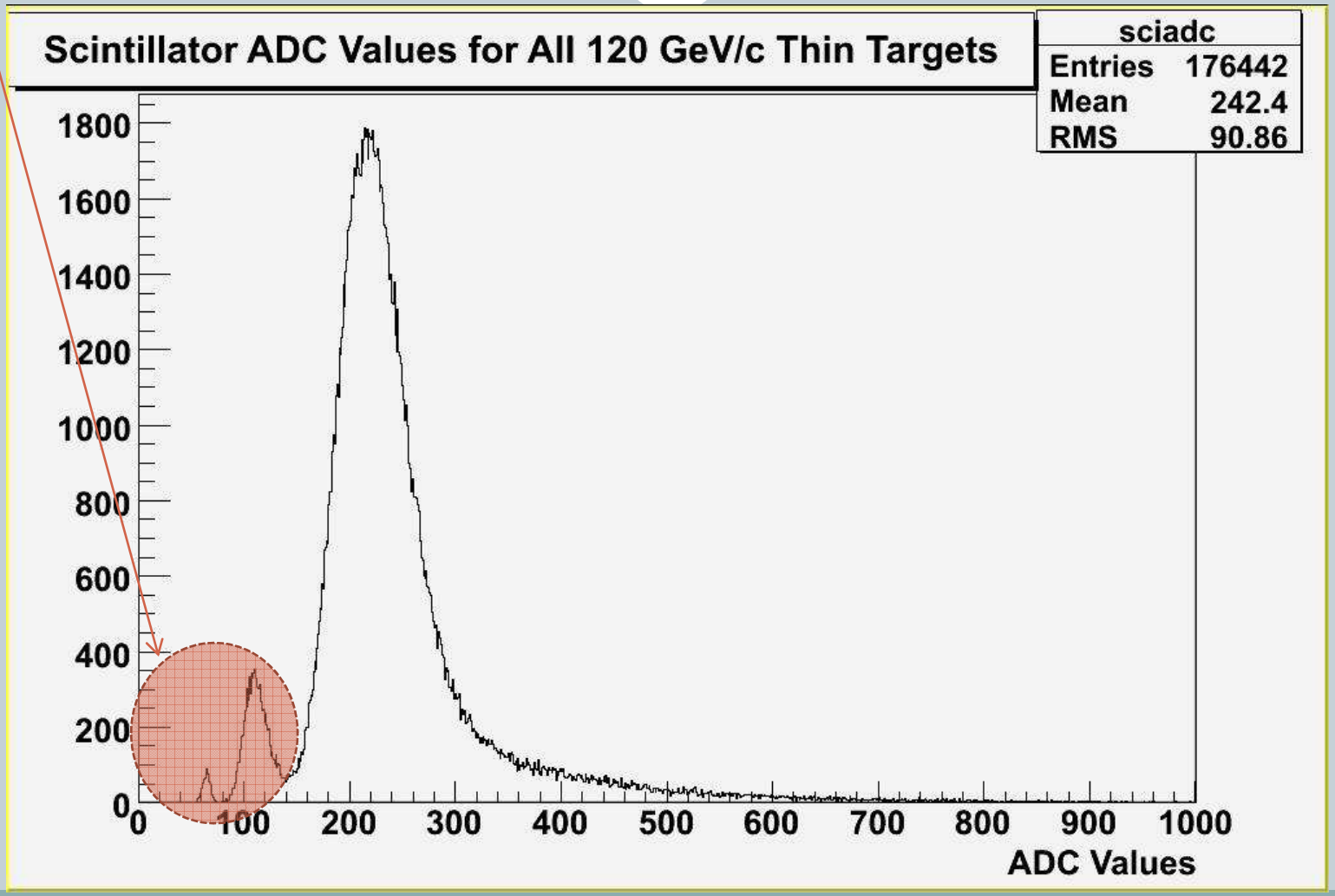
Scinteraction dE Studies

YUSUF OGUZHAN GUNAYDIN

UNIVERSITY OF IOWA

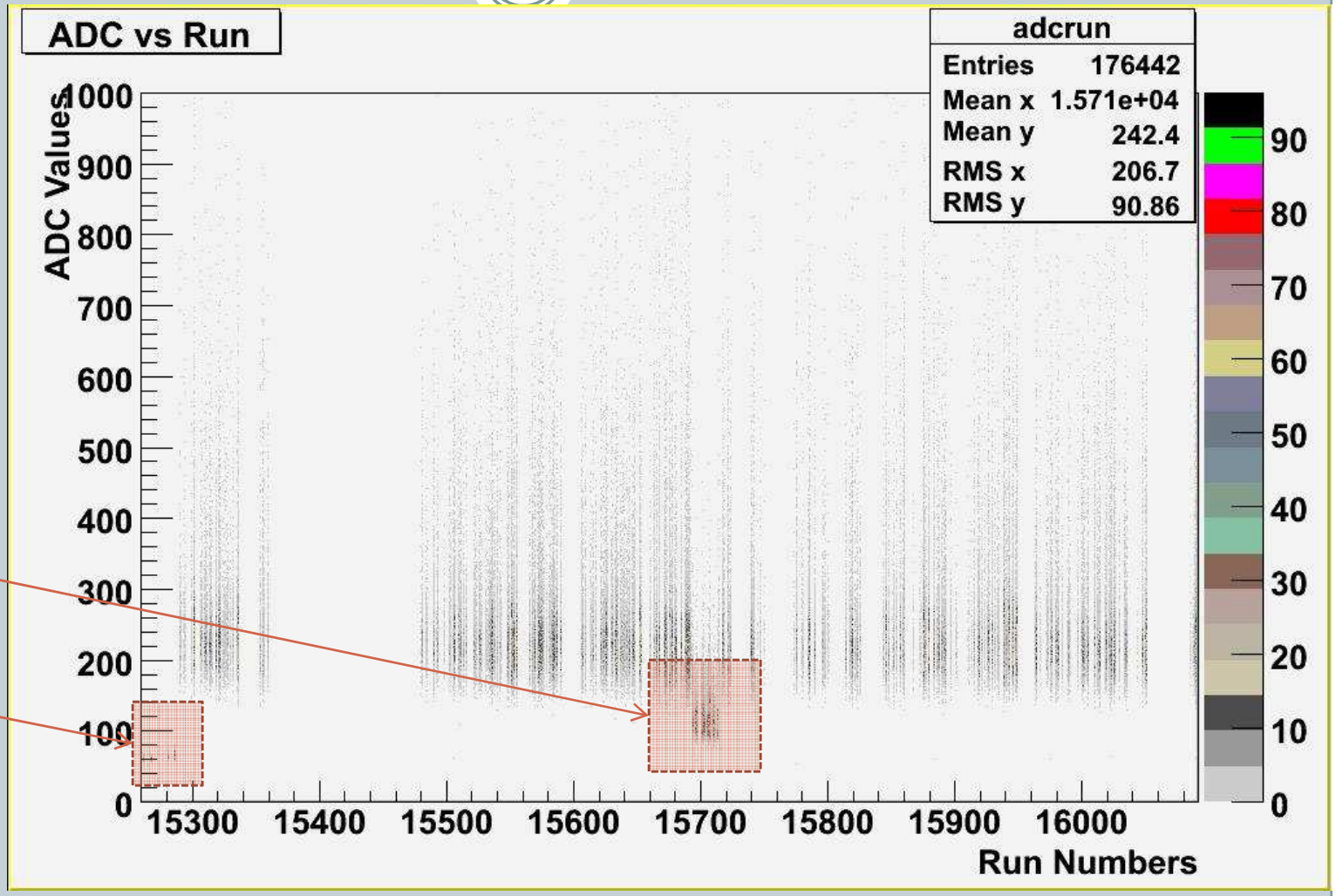
DEPARTMENT OF PHYSICS & ASTRONOMY

I plotted single beam track for all 120 GeV/c on thin targets with DST. (Real data)
There are two small peaks in this plot like Turgun's last week plot.



Then, I plotted 2D-ADC vs. Run Number histogram to see which run numbers cause these small peaks.

Generally, the lower ADC values correspond to the run numbers which are between 15695 and 15716 and others are from 15260 to 15286.



Next, I searched the MIPP run finder that some part of data were taken with those numbers between August 1st,2005 and August 2nd ,2005 and the other some were between August 26th , 2005 and August 29th, 2005. And inside the MIPP online logbook;

- Tuesday, August 2, 2005 23:12:39 CDT: MIPP_Run_Log/MIPP_Run_Log: 19442: Sin Man (Sharon) Seun

  During shot setup, Ugur and I did a control access to measure the resistance of the signal and the HV cable on the scintillator interaction detector. The signal resistance was ~9.9 kohm, but the HV cable was measured to be infinity. We opened up the end of the tube and resoldered the broken HV connection to the base. We remeasured the HV resistance and it was ~5.3 Mohm. Now the scintillator detector seems to be working fine.

  Comment by Jonathan Paley on Tuesday, August 2, 2005 11:35:59 PM CDT
  Excellent! Thanks for doing this, I know it wasn't as easy as I predicted... great job though!

- Friday, August 26, 2005 21:18:10 CDT: MIPP_Run_Log/MIPP_Run_Log: 20450: Chad Materniak

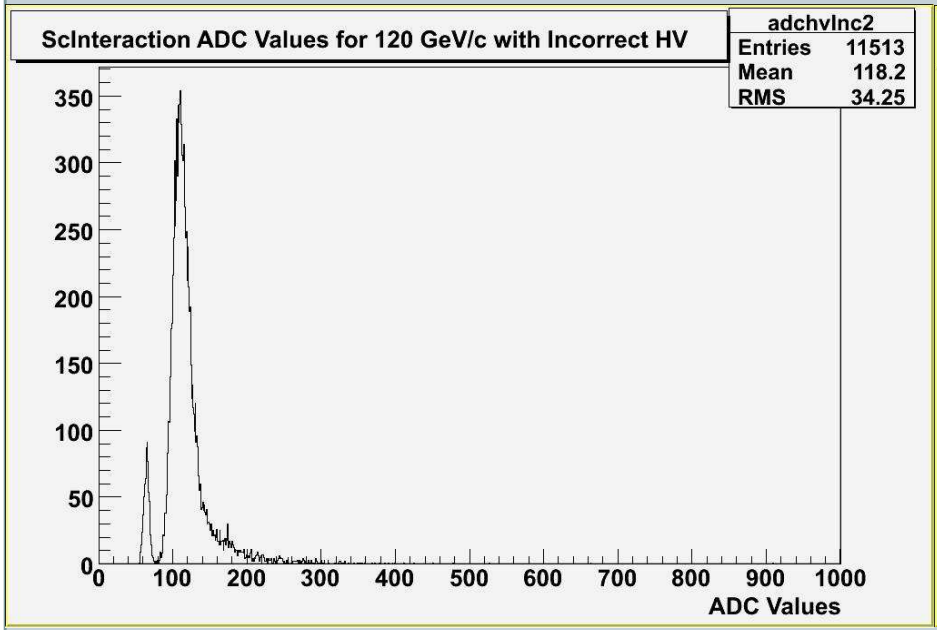
  run #15694 is the first run with all TOF tubes at -880V

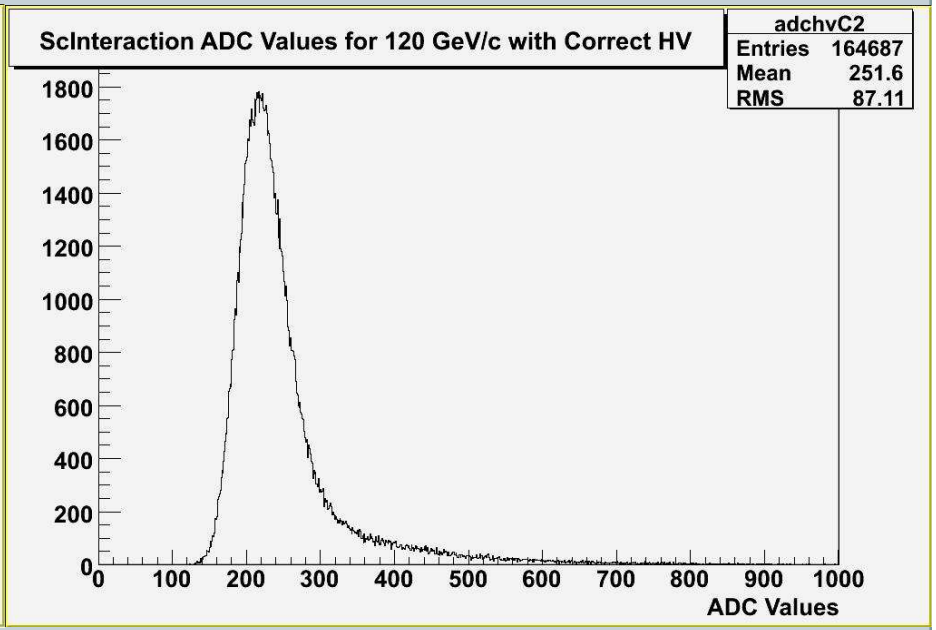
  I changed the target value for the TOF voltages in the e907ana3 monitoring gui to -880V

- Monday, August 29, 2005 10:42:46 CDT: MIPP_Run_Log/MIPP_Run_Log: 20537: Mike Longo

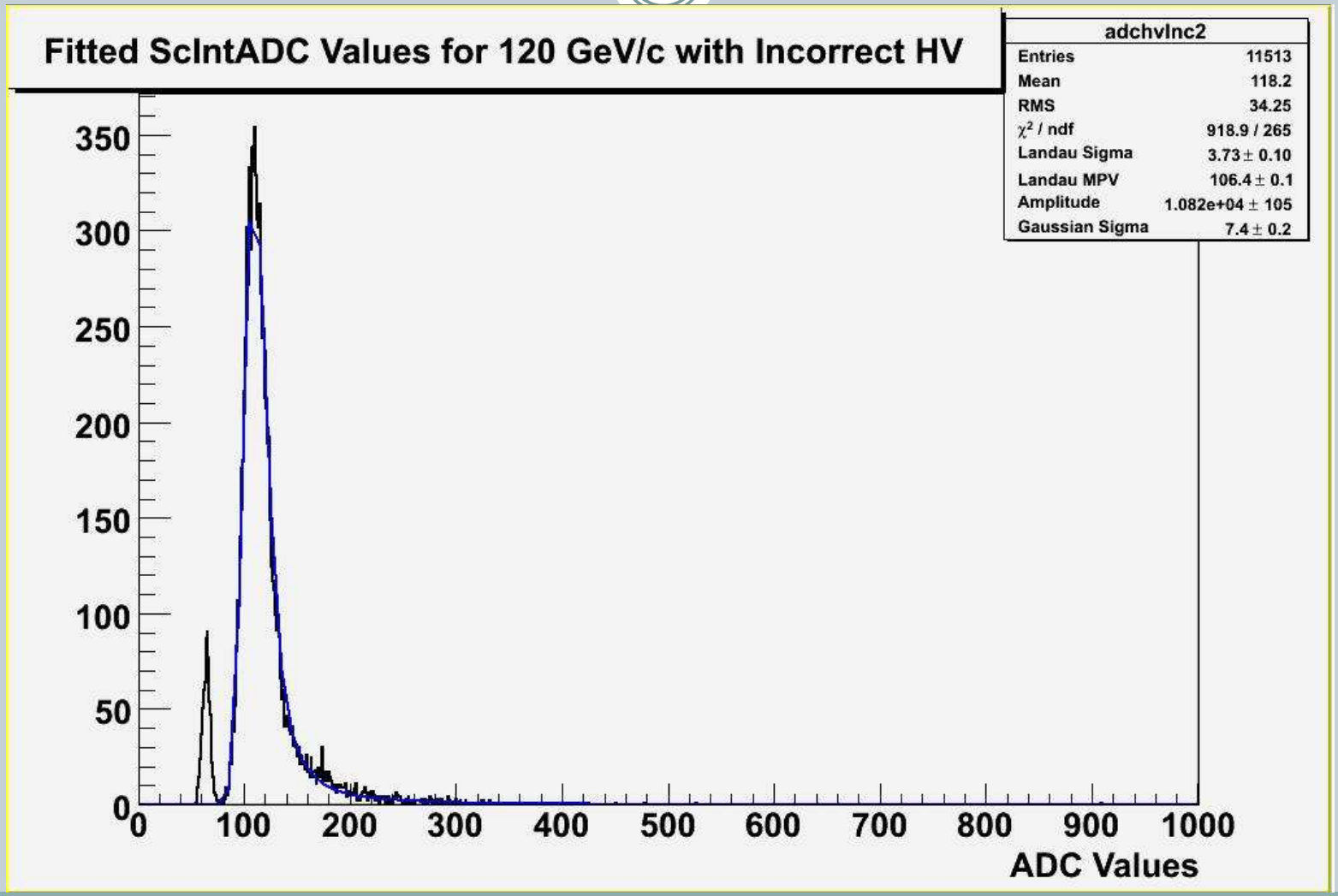
  Jon called and asked me to check Interaction Scintillator HV.
  It was set at 900 V and should be at 1100 V.
  Ended run and reset it to correct value (1100) and started
  run 15715.

After that, I plotted all 120 GeV/c thin targets Single Beam Track histogram for correct HV setting and incorrect HV setting, separately.

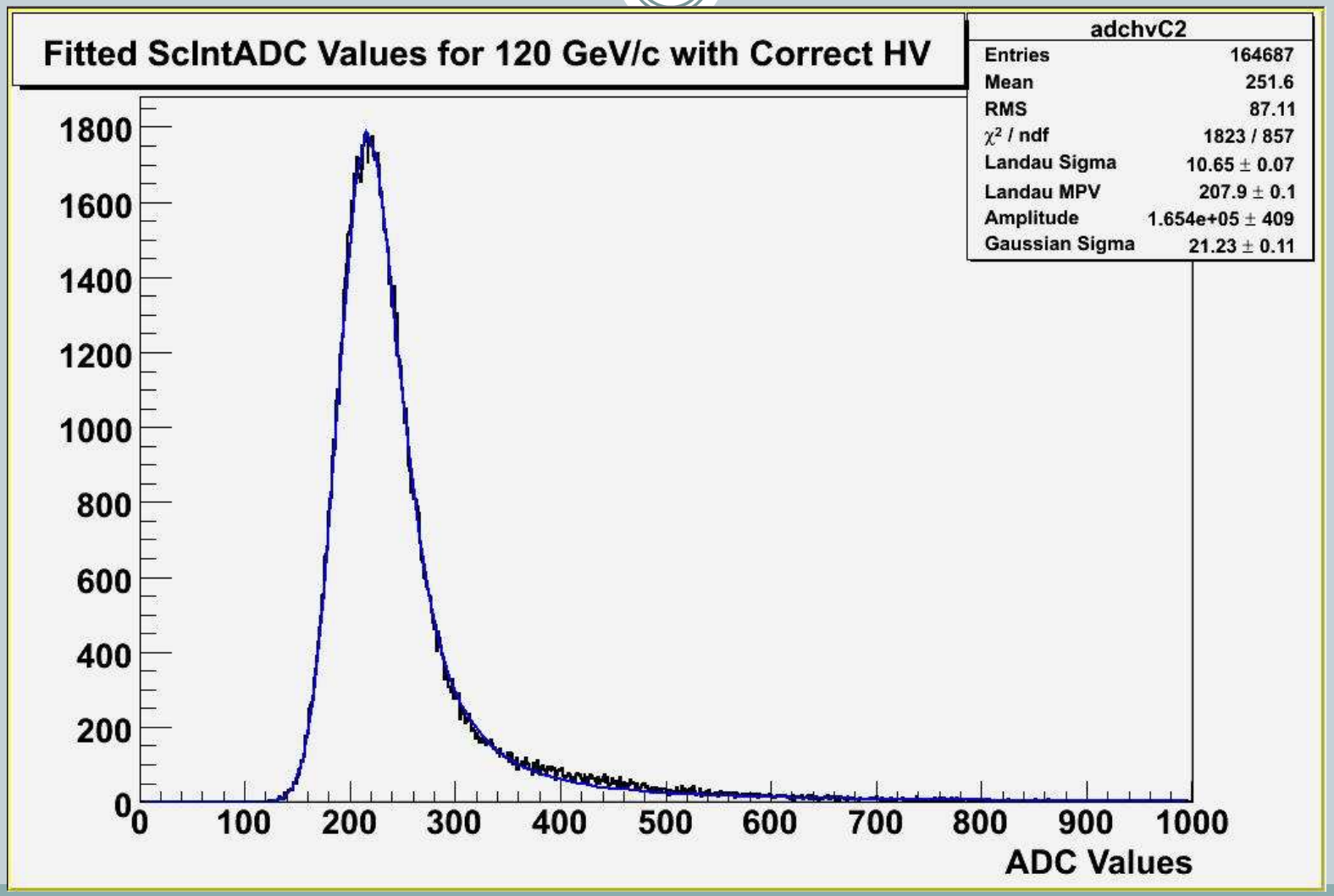




I used Jon's convolution of Landau and Gauss functions (Langau) to fit single beam track histograms. First, the HV was set incorrectly. Number of entries(11513) is a good estimation for the total number of events in all runs where the HV was set incorrectly.



Then, I fitted plot for the HV that was set correctly.



Next Steps?

•From two histograms MPV :

Conversion factor = 1.95394737

•This conversion factor should be applied to the run numbers which have incorrect HV setting in database.

- Subtracting pedestal from Single Beam ADC spectrum.
- Applying Langau fit to new plot to get correct MPV and conversion factor for ScintDigitizer.